

Patent Abstracts of Japan

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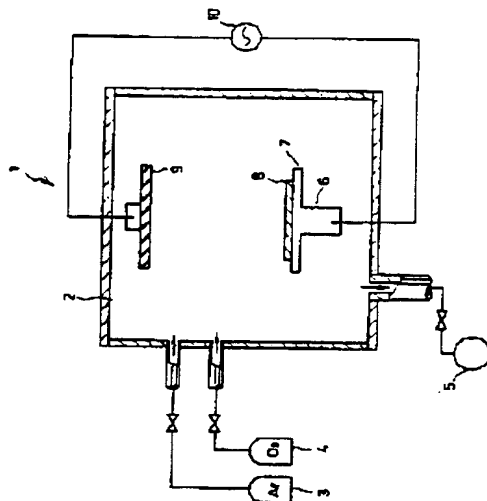
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TITLE : MANUFACTURE OF
SEMICONDUCTOR INTEGRATED
CIRCUIT DEVICE



ABSTRACT : PURPOSE: To enhance the water-resistant property of the surface of a film and to restrain a microscopic crack from being caused by a method wherein a silicon oxide film or a silicon nitride film is deposited on the surface of a semiconductor wafer in a plasma atmosphere whose degree of vacuum is prescribed and, after that, an oxygen plasma treatment is executed to its surface.

CONSTITUTION: The inside of a chamber 2 is set to a prescribed degree of vacuum; after that, argon gas is introduced; in succession, a plasma atmosphere is produced; and a silicon oxide film is deposited on the surface of a wafer 8. Then, an oxygen plasma atmosphere is produced; and an oxidation treatment is executed to the surface of the silicon oxide film. The water-resistant property of the silicon oxide film to which the oxidation treatment has been executed is enhanced remarkably as compared with the film to which the treatment has not been executed. Instead of an oxygen plasma treatment, the surface of the silicon oxide film may be irradiated with an oxygen radical or ozone so as to execute an oxidation treatment to its surface. Since the surface of the silicon oxide film is oxidized and the dangling bond density of silicon is reduced, it is possible to prevent tungsten from being precipitated abnormally on the surface of the silicon oxide film when a connecting hole is made in one part and a tungsten film is filled into the hole by using a selective CVD method; and the selectivity of the tungsten film is enhanced.

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